

## 2.8 WATER QUALITY

The key project-related hydrologic and water impacts were based on the Preliminary Hydraulics Report (CH2M Hill) and the Flooding Study for Suisun Creek at Interstate 80 (WRECO). These reports are available for public review at Caltrans District 4, 111 Grand Avenue, Oakland, CA 94610, and the Solano Transportation Authority, One Harbor Center, Suite 130, Suisun City, CA 94585 during normal business hours.

### Regulatory Setting

The primary federal law regulating Water Quality is the Clean Water Act. Section 401 of the Act requires a water quality certification from the State Board or Regional Board when a project: 1) requires a federal license or permit (a Section 404 permit is the most common federal permit for Department projects), and 2) will result in a discharge to waters of the United States.

Section 402 of the Act establishes the National Pollutant Discharge Elimination System (NPDES) permit system for the discharge of any pollutant (except dredge or fill material) into waters of the United States. To ensure compliance with Clean Water Act Section 402 the State Water Resources Control Board (SWRCB) has issued a NPDES Statewide Storm Water Permit to regulate storm water discharges from Department facilities. The permit regulates storm water discharges from the Department right-of-way both during and after construction, as well as from existing facilities and operations. In addition, the SWRCB has issued a construction general permit for most construction activities covering greater than 1 acre (0.40 hectare), that are part of a Common Plan of Development exceeding 5 acres (2.02 hectare) or that have the potential to significantly impair water quality. Some construction activities may require an individual construction permit. All Department projects that are subject to the construction general permit require a Storm Water Pollution Prevention Plan (SWPPP), while all other projects require a Water Pollution Control Program (WPCP).

The streams and receiving waters in the project vicinity are within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The NPDES permit is issued by the RWQCB, which regulates storm water and waste runoff in the Bay Area. The Regional Board recently amended NPDES requirements Provision C.3 to include stricter controls that limit stormwater pollutant discharge associated with certain new development and significant redevelopment projects. Projects that disturb one or more acres of soil are required to obtain the General Permit for Discharges of Storm Water Associated with Construction Activity. Also, where projects have significant changes in impervious surface or significant change in stormwater runoff volume or timing, projects are required to prepare a Hydrograph Modification Management Plan (HMP). Under the existing General Permit criterion, projects are also required to develop and adhere to Storm Water Pollution Prevention Plan (SWPPP) and Best Management Practices (BMP's).

Local highway projects, such as the North Connector, follow Caltrans' NPDES Permit standards and therefore prohibit discharges of storm waters containing pollutants from facilities or rights-of-way. Stormwater is runoff generated from a precipitation event. Permitted non-stormwater discharges include discharges such as irrigation water, uncontaminated pumped groundwater, and other sources of clean water not generated

from a precipitation event. The project must take measures throughout the design, construction and maintenance to eliminate the potential to impact water quality to the maximum extent practicable.

## **Affected Environment**

Historical water quality monitoring data available for surface water in the project area includes data for Green Valley Creek from 1968 through 1974. Surface water quality data for Green Valley Creek is summarized and shown in Table A-1 of the Water Quality Report. Water quality data for other surface water features within the project area were not found within the EPA STORET legacy (before 1999) or the modernized (after 1999) archives. EPA'S STORET (Storage and Retrieval) is a repository for water quality, biological, and physical data and is used by state environmental agencies, the EPA and other federal agencies, universities, private citizens, and many others. In addition, STORET water quality data are available for several additional downstream receiving waters, including Cordelia and Suisun Sloughs, numerous other sloughs in the Suisun Marsh vicinity, and Suisun Bay. Due to the voluminous quantity of data for these downstream surface water features, these data were not summarized for this report. They are available at the STORET Legacy Surface Water Quality Web site at: <http://www.epa.gov/storpubl/legacy/gateway.htm>.

Contacts with representatives of Solano County and City of Fairfield public agencies failed to identify local roadway stormwater runoff water quality data. City of Fairfield Public Works-Water Division and Solano County Department of Transportation-Engineering Division personnel indicated that to their knowledge no specific stormwater runoff water quality data existed for roadways within their jurisdiction.

Water quality depends primarily on the hydrologic characteristics of the basin, mineral composition of the soils in the watershed and sources of contamination in the watershed. The quality of storm water varies greatly depending on climatic and land use conditions. Urban and industrial runoff is known to contribute significantly to the levels of toxic materials such as metals and organic pesticides transported to surface bodies of water. Stormwater discharges may contain unacceptable levels of total petroleum hydrocarbons as gasoline and diesel, oils, brake material, organic material, pesticides, heavy metals (copper, lead, cadmium, and zinc), fertilizers, trash, and sediment.

Jameson Canyon Creek and Suisun Creek were not found on the 2004 303(d) List of Water Quality Limited Segments compiled by the State Water Resources Control Board.

## **Impacts**

### **Methodology**

Evaluation of water quality impacts was based on professional standards and results from technical reports prepared for the project. This impact analysis assumes that the project proponent will conform to county building standards, grading permit requirements, and erosion control requirements. This impact analysis also assumes that all disclosed project effects apply to both construction at the interchange and bridge sites unless otherwise indicated.

### **West End**

The cut quantities from grading in the West End would total 86,498 cubic meters and the fill quantities would total 86,394 cubic meters of soil. These estimates would result in a net balance of 104 cubic meters of soil material being exported from the project area. A construction area of approximately 5.7 hectares (12.55 acres) would contain stockpiled soil and all equipment storage and maintenance. This location would use an existing private driveway access, thereby eliminating the need for constructing a new driveway access.

Materials used in project construction at the West End would include approximately:

- 2,926 cubic meters of asphalt and concrete for roadways,
- 2,926 cubic meters of aggregate base for roadways,
- 5,937 cubic meters of sub-base material for roadways,
- 833 cubic meters of asphalt and concrete for shoulders,
- 833 cubic meters of aggregate base for shoulders, and
- 1,443 cubic meters of sub-base material for shoulders.

### **Central Section**

Construction or grading activities in the Central Section would be minimal since the project would primarily involve realigning an existing roadway.

### **East End**

Roadway excavation for the proposed project would total about 49,000 cubic meters of soil material in the East End.

Materials to be used in construction at the East End are estimated to include:

- 10,300 cubic meters of asphalt and concrete for roadways,
- 10,300 cubic meters of aggregate base for roadways,
- 21,000 cubic meters of sub-base material for roadways,
- 2,000 cubic meters of asphalt and concrete for shoulders,
- 2,000 cubic meters of aggregate base for shoulders, and
- 3,250 cubic meters of sub-base material for shoulders.

Similar to the West End of the project area, the potential for pollutant emissions during facility operation of the East End are primarily dependent upon the type of facility being constructed and the amount of impervious surface area available for contact with stormwater runoff. This type of project would result in a modest increase in stormwater runoff and an increased potential for stormwater pollution.

### **Avoidance, Minimization, and Mitigation Measures**

**Impact WQ 1:** Construction activities can impair water quality temporarily due to the potential for sediment, petroleum products, construction materials, and miscellaneous wastes to be discharged into receiving waters or the storm drainage system. Soils and associated contaminants that enter stream channels can increase turbidity, stimulate growth of algae, increase sedimentation of aquatic habitat, and introduce compounds that are potentially harmful or toxic to aquatic organisms.

Construction materials such as fuels, oils, paints, and concrete are potentially harmful to fish and other aquatic life if released into the environment. The extent of the potential impacts related to construction activities depends on the erodability of soil types encountered, type of construction activities, extent and duration of disturbed area, timing of precipitation, proximity to drainage channels, and BMP implementation. However, due to the nature and the topography of the project area, the potential for short-term water quality impacts from erosion and pollutant discharges would be expected to be fully mitigated using appropriate BMP methods.

**Mitigation Measure WQ 1a:** The project shall adhere to the conditions of the National Pollutant Discharge Elimination System (NPDES) Permit, including the C.3 requirements for stormwater discharge treatment measures and appropriate source control and site design measures. To avoid potential long term impacts to water quality the project will be designed to include bioswales to retain and treat stormwater runoff from the roadway before entering the City's stormwater drainage system. To comply with temporary water quality impact resulting from construction activities, a Storm Water Pollution Prevention Plan (SWPPP) will be prepared prior to grading activities. The SWPPP must list Best Management Practices (BMP's) that will be followed minimize contaminants entering storm drains as a result of storm runoff. Treatment BMPs that have been approved for use as treatment by the SWRCB and include:

- Biofiltration strips and swales,
- Infiltration basins,
- Detention devices,
- Dry weather flow diversions,
- Gross solid removal devices,
- Media Filters
- Multi-chamber Treatment Trains
- Wet Basins

One or a combination of the above-mentioned treatment BMPs may be implemented prior to construction. However, at the current level of design, it is not possible to identify location-specific BMPs in the environmental document. It would be necessary to identify these location-specific BMPs in the SWPPP prepared by the contractors prior to construction.

The Storm Water Data Report (SWDR) for the PA/ED phase of this project was approved on 7/19/2005. The receiving waters within the project limits are Jameson Creek, Dan Wilson Creek, Suisun Creek and their tributaries. Suisun Bay, Suisun Slough and Suisun Marsh Wetland are downstream from the project site. Suisun Bay, Suisun Slough and Suisun Marsh Wetland, downstream from the project location, are 303(d) listed water bodies. Suisun Bay is approximately 12 km (7.5 miles) downstream from the project receiving waters. The Suisun Marsh Wetland begins approximately 2 km (1.2 miles) downstream from the Suisun Creek crossing. Suisun Slough is approximately 4 km (2.5 miles) away, but not directly downstream. The SFBRWQCB has designated Suisun Bay and Suisun Slough as water quality limited as defined by the United States Environmental Protection Agency (USEPA). There are no identified High Risk Facilities affected by the project.

**Mitigation Measure WQ1b:** In addition to soil materials, asphalt, concrete, and cement material discussed above, during SWPPP development, the contractor shall be required to identify all potential pollutants from construction activities. It is expected that implementation of BMPs would fully mitigate any impacts of construction of the project on receiving water quality. Implementation of BMPs would fully mitigate any water quality impacts from project construction activities.

**Impact WQ 2:** The potential pollutants during facility operation are primarily dependent upon the type of facility being constructed. For example, a new alignment as proposed in this project will increase the amount of impervious surface area available for contact with stormwater runoff (wet and dry weather flows). This type of project would result in a modest increase in stormwater runoff and an increased potential for stormwater pollution. The existing storm drainage system for I-80 and many of the other surface roadways in the project vicinity were designed and installed prior to recent and stringent water quality standards. The proposed project would improve functional aspects of the storm drainage system. Specifically, the proposed project would provide the opportunity to incorporate pollution prevention and treatment BMPs to reduce existing areas of erosion and remove pollutants from stormwater discharges. The proposed project would also provide the opportunity to repair existing areas of erosion, especially at the surface water crossing locations. Any impacts to water quality from the long-term operation of the project would be expected to be fully mitigated by implementation of applicable BMPs.

**Mitigation Measure WQ 2:** Implementation of BMPs would fully mitigate any water quality impacts associated from changes in stormwater drainage.

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